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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
HARRIS, ALANA M	

ART UNIT	PAPER NUMBER
1643	

DATE MAILED: 09/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/643,829	LIU ET AL.	
	Examiner	Art Unit	
	Alana M. Harris, Ph.D.	1643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) *22 and 23* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/14/03; 06/08/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I (claims 1-21) in the reply filed on June 26, 2006 is acknowledged. The traversal is on the ground(s) that "...both groups relate to a single novel compound and method of use of that compound.", see Remarks submitted June 26, 2006, page 7, 4th paragraph. This is not found persuasive because as noted in the Requirement mailed May 25, 2006, page 2, section 2 the product of Group I can not only be used in Group II (claims 22 and 23), but in materially different processes that yield different endpoints.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 1-23 are pending.

Claims 22 and 23, drawn to non-elected inventions are withdrawn from examination.

Claims 1-21 are examined on the merits.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-17, 20 and 21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject

matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims are drawn to a genus of nucleic acid molecules capable of directing CA125/M17S2 expression, polynucleotides having at least 90% identity to SEQ ID NO: 1 and complements of SEQ ID NO: 1 and complements of polynucleotides having at least 90% identity to SEQ ID NO: 1.

The specification does not describe with any degree of particularity all of the members of the genus comprising nucleic acid molecules that are deemed capable of directing transcription and complements of those molecules. Moreover, the specification does not describe with any degree of particularity all of the members of polynucleotides having at least 90% sequence identity to SEQ ID NO: 1 and complements of the said members, such that the specification might reasonably convey to the skilled artisan that Applicant had possession of the claimed invention at the time the application was filed. At page 23, last paragraph the specification notes "the CA125/M17S2 promoter as set forth in SEQ ID NO: 1 and FIG.1, having a nucleic acid sequence beginning with cytosine at nucleotide position 1 and ending with guanine at nucloeotide position 1431." However, the corresponding figure description describes Figure 1 as the sequence of CA125p1431 DNA fragment, wherein it contains an exon and a partial exon. Consequently, while it seems as if Applicant has one species of nucleic acid molecules that are deemed capable of directing transcription and that being a fragment of SEQ ID NO: 1, it is not clear which section of SEQ ID NO: 1 is regarded

as the promoter region. Given these conflicting recitations and no other information provided, one skilled in the art could not immediately recognize or distinguish members of the genus of claimed nucleic acid molecules that are deemed capable of directing transcription and polynucleotides having at least 90% sequence identity to SEQ ID NO: 1. One of ordinary skill in the art could not immediately recognize or distinguish members of the genus of uncharacterized and undefined nucleic acid sequences.

MPEP § 2163.02 states, "[a]n objective standard for determining compliance with the written description requirement is, 'does the description clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed' ". The courts have decided:

> The purpose of the "written description" requirement is broader than to merely explain how to "make and use"; the applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention.* The invention is, for purposes of the "written description" inquiry, *whatever is now claimed.*

See *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Federal Circuit, 1991). Furthermore, the written description provision of 35 USC § 112 is severable from its enablement provision; and adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it. See *Fiers v. Revel*, 25 USPQ2d 1601, 1606 (CAFC 1993) and *Amgen Inc. V. Chugai Pharmaceutical Co. Ltd.,* 18 USPQ2d 1016.

The Guidelines for Examination of Patent Applications Under the 35 U.S.C. 112, paragraph 1, ``Written Description'' Requirement (66 FR 1099-1111, January 5, 2001) states, "[p]ossession may be shown in a variety of ways including description of an

actual reduction to practice, or by showing the invention was 'ready for patenting' such as by disclosure of drawings or structural chemical formulas that show that the invention was complete, or by describing distinguishing identifying characteristics sufficient to show that the applicant was in possession of the claimed invention" (*Id.* at 1104). Moreover, because the claims encompass a genus of variant species, an adequate written description of the claimed invention must include sufficient description of at least a representative number of species by actual reduction to practice, reduction to drawings, or by disclosure of relevant, identifying characteristics sufficient to show that Applicant was in possession of the claimed genus. However, factual evidence of an actual reduction to practice has not been disclosed by Applicant in the specification; nor has Applicant shown the invention was "ready for patenting" by disclosure of drawings or structural chemical formulas that show that the invention was complete; nor has Applicant described distinguishing identifying characteristics sufficient to show that Applicant were in possession of the claimed invention at the time the application was filed.

Therefore, absent a detailed and particular description of a representative number, or at least a substantial number of the members of the genus of nucleic acid molecules, the skilled artisan could not immediately recognize or distinguish members of the claimed genus of nucleic acid sequences. Moreover, since the specification has not identified which nucleic acid molecules of the genus of sequences, one skilled in the art would not recognize that Applicant had possession of the claimed invention at the time the application was filed. There is insufficient support the generic claims as

provided by the Interim Written Description Guidelines published in the June 15, 1998 Federal Register at Volume 63, Number 114, pages 32639-32645.

The full breadth of the claims does not meet the written description provision of 35 U.S.C. 112, first paragraph.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claims 1 and 2 are vague and indefinite because it seems the isolated nucleic acid molecule identified as SEQ ID NO: 1, which seems to encode CA125/M17S2 is also regarded as the regulatory sequences, which are involved in the transcription of SEQ ID NO: 1. They cannot be one in the same molecule, therefore Applicants are requested to clarify.

b. The recitation "sequences consistent with CA125/M17S2 expression" in claim 1 is ambiguous and unclear. Accordingly, the metes and the bounds cannot be determined.

c. The recitation "a polynucleotide having the SEQ ID NO 1" in claims 3(c), 5(c), 8(c) and 13(c) is indefinite. It seems as if claim language is missing between the words "the" and "SEQ", such as full-length sequence of. Applicants are requested to clarify and to add a colon after the acronym, NO.

d. "[T]he nucleotide positions..." in claims 18 and 20 lack antecedent bases.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

8. Claims 1-6 and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Barker et al. (Genomics 38(2): 215-222, 1996) as evidenced by Accession number

U72483. Barker discloses an 1A1.3B promoter region, page 219, Figure 2 of Barker and Features section of Accession #U72483. The acronym, CA125/M17S2 is also known as 1A1.3B, see specification, page 1, Field... section. The 1A1.3B promoter region disclosed by Barker is a purified and isolated nucleic acid molecule, which directs transcription of CA125/M17S2 expression.

Moreover, the sequence provided in the accession database sheet shares 100% sequence identity to Applicants' SEQ ID NO: 1 and includes a cis-element, nucleotides positions between 390 and 521 of SEQ ID NO: 1.

9. Claims 1-6 and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 98/23779 (published 4 June 1998). The WO document discloses an 1A1.3B promoter region, page 7, lines 22 and 23 and Figure 2. The acronym, CA125/M17S2 is also known as 1A1.3B, see specification, page 1, Field... section. The 1A1.3B promoter region disclosed in the document is a purified and isolated nucleic acid molecule, which directs transcription of CA125/M17S2 expression.

Moreover, the sequence provided in the accession database sheet shares 100% sequence identity to Applicants' SEQ ID NO: 1 and includes a cis-element, nucleotides positions between 390 and 521 of SEQ ID NO: 1, see sequence 2 on pages 33-35 of the document.

10. Claims 1-12 and 18-21 are rejected under 35 U.S.C. 102(e) as being anticipated by WO 03/025190 A1 (January 30, 2002). The WO document discloses a human

tumour-specific promoter of the IAI.3B gene, which is also known as CA125/M17S2, see the abstracts of all three corresponding documents and attached database sheet. The WO document is also known as PCT/JP02/00724 and 2002WI-JP000724. The promoter was inserted in the E1 domain of the adenovirus, see abstract.

11. Claims 1-21 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication 2005/0031591 A1 (January 30, 2002). The publication discloses a human tumour-specific promoter of the IAI.3B gene, which is also known as CA125/M17S2, see the abstracts of all three corresponding documents and pages 7 and 8, Sequence 1. The disclosed promoter can be introduced into a vector, such as retrovirus vector, adenovirus vector and adeno-associated virus, which is contained in a cancer cell, see page 4, sections 0038 and 0041; Example 2 beginning on page 5; and Example 3 beginning on page 6. The cancer cell is regarded as a host cell. The disclosed promoter, a gene encoding a cytokine, as well as a gene encoding a drug metabolic enzyme and a prodrug can be integrated into an expression vector together, see page 4, sections 0038 and 0041.

12. Claims 1-21 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent number 6,812,339 (filed September 10, 2001). Sequence number 12540 is the same as Applicant's SEQ ID NO: 1, see attached database sheet. This recombinant nucleic acid molecule can be contained in a vector amongst other nucleic acid sequences and further in a heterologous host cell, see column 9, lines 59-65; column

11, lines 43-47; column 12, lines 21-25 and 35-37; and column 29, lines 47-49. The vectors can be a bacteriophage, or viral vectors, see column 22, lines 33-49 and column 29, lines 11-15.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over by WO 98/23779 (published 4 June 1998), and further in view of U.S. Patent Application Publication 2005/0031591 A1 (January 30, 2002). The teachings of the WO document have been presented in the 102(b) rejection on page 8. This document does not teach a nucleic acid construct having the disclosed ovarian cancer cell specific promoter (a first polynucleotide) operably linked to a second polynucleotide within a vector and a host cell.

However, the patent teaches second polynucleotide sequences, as well as vectors and host cells. It would have been *prima facie* obvious at the time of the claimed invention to use the same expression system and regulatory sequences provided in the patent. One of ordinary skill in the art would have been motivated to express a recombinant polypeptide with a reasonable expectation of success because

the disclosed promoter can be introduced into a vector, such as retrovirus vector, adenovirus vector and adeno-associated virus, which is contained in a cancer cell, see page 4, sections 0038 and 0041; Example 2 beginning on page 5; and Example 3 beginning on page 6. The cancer cell is regarded as a host cell. The disclosed promoter, a gene encoding a cytokine, as well as a gene encoding a drug metabolic enzyme and a prodrug can be integrated into an expression vector together for further use in gene therapy of cancer, see page 3, section 0032 and page 4, sections 0038 and 0041.

15. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over by WO 03/025190 A1 (January 30, 2002), and further in view of U.S. Patent Application Publication 2005/0031591 A1 (January 30, 2002). The teachings of the WO document have been presented in the 102(e) rejection on page 9. This document does not teach a nucleic acid construct having the disclosed ovarian cancer cell specific promoter (a first polynucleotide) operably linked to a second polynucleotide within a vector and a host cell.

However, the patent teaches second polynucleotide sequences, as well as vectors and host cells. It would have been *prima facie* obvious at the time of the claimed invention to use the same expression system and regulatory sequences provided in the patent. One of ordinary skill in the art would have been motivated to express a recombinant polypeptide with a reasonable expectation of success because the disclosed promoter can be introduced into a vector, such as retrovirus vector,

adenovirus vector and adeno-associated virus, which is contained in a cancer cell, see page 4, sections 0038 and 0041; Example 2 beginning on page 5; and Example 3 beginning on page 6. The cancer cell is regarded as a host cell. The disclosed promoter, a gene encoding a cytokine, as well as a gene encoding a drug metabolic enzyme and a prodrug can be integrated into an expression vector together for further use in gene therapy of cancer, see page 3, section 0032 and page 4, sections 0038 and 0041.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alana M. Harris, Ph.D. whose telephone number is (571) 272-0831. The examiner works a flexible schedule, however she can normally be reached between the hours of 7:30 am to 6:30 pm, with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry R. Helms, Ph.D. can be reached on (571) 272-0832. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ALANA M. HARRIS, PH.D.
PRIMARY EXAMINER

Alana M. Harris, Ph.D.
28 August 2006